

SECTION 09 24 00
PORTLAND CEMENT PLASTERING (STUCCO)

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies metal lathing and Portland cement based plaster finish system for exterior stucco locations as indicated on the drawings.

1.2 RELATED WORK

- A. Steel framing members for attachment of gypsum substrate and plaster bases: Section 05 40 00, COLD-FORMED METAL FRAMING.
- B. Air barrier on gypsum sheathing substrate: Section 07 27 26, FLUID APPLIED AIR BARRIER.
- C. Rigid thermal insulation substrate: Section 07 21 13, THERMAL INSULATION.
- D. Sealants at perimeter of stucco and within control joints: Section 07 92 00, JOINT SEALANTS.
- E. Room finish schedule and color: Section 09 06 00, SCHEDULE FOR FINISHES.
- F. Gypsum sheathing substrate: Section 09 29 00, GYPSUM BOARD.

1.3 TERMINOLOGY

- A. Definitions and description of terms shall be in accordance with ASTM C11, C841, and C926 and as specified.
- B. Solid Backing or Solid Bases: Gypsum sheathing and rigid insulation to which plaster is directly applied.
- C. Self Furring Lath: Metal plastering bases having dimples or crimps designed to hold the plane of the back of lath 1/4 inch to 3/8 inch away from the plane of the solid backing substrate.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Metal lath and paper backing.
 - 2. Accessories for plaster (stucco), each type, including vent reveal strip.
 - 3. Metal plastering bases, each type.
 - 4. Fasteners.
 - 5. Bonding compounds, including application instructions.
 - 6. Admixtures, including mixing and application instructions.
 - 7. Color charts indicating full range of available colors.
- C. Samples:

1. Metal lath and paper backing.
2. Accessories for plaster (stucco), each type, including vent reveal strip, not less than 6 inches long.
3. Panels showing each finish coat, color and texture, 24 inches by 24 inches.

1.5 QUALITY ASSURANCE

- A. Mockups: Before plastering, install mockups of at least 100 sq. feet in surface area where directed by the Resident Engineer to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Install mockups for each type of finish and color indicated.
 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- B. Pre-installation Conference: Conduct conference at Project site.
- C. Exterior Stucco:
 1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
 2. Apply plaster when ambient temperature is greater than 50 deg F.
 3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.
- D. Factory-Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver manufactured materials in their original packages or containers or bundles with manufacturer's name, brand name, grade, expiration date of color coat, and other pertinent data clearly marked thereon.
- B. Store plaster, cement, lime and sand off ground and under watertight cover, away from sweating walls and other damp surfaces, until ready for use. Deliver and store all materials to prevent staining or damage from weather, including direct sunlight, surface contamination, corrosion, construction traffic and other cases. Remove damaged or deteriorated materials from the site.

1.7 PROJECT CONDITIONS

- A. Comply with ASTM C 926 requirements.
- B. Exterior plaster shall not be applied when the ambient temperature is less than 50 degrees F.
- C. Plaster shall not be applied to frozen surfaces or surfaces containing frost.
- D. Frozen materials shall not be used in the mix.

- E. Plaster coats shall be protected against freezing for a period of not less than 24 hours after application.
- F. Coordinate with Work specified under other sections that penetrate or otherwise disturbs this Work.

1.8 WARRANTY

- A. Exterior stucco system is subject to the terms of the Article "Warranty of Construction", FAR Clause 52.246-21, except extend the warranty period to 18 (eighteen) months.

1.9 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
- B. American Society for Testing And Materials (ASTM):
 - A653-07.....Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - C11-07.....Terminology Relating to Gypsum and Related Building Materials and Systems.
 - C150-07.....Portland Cement
 - C260-06.....Air Entraining Admixtures for Concrete.
 - C841-03.....Installation of Interior Lathing and Furring
 - C847-06.....Metal Lath
 - C897-05.....Aggregate for Job-Mixed Portland Cement Based Plasters
 - C926-06.....Application of Portland Cement-Based Plaster
 - C979-05.....Pigments for Integrally Colored Concrete
 - C1002-07.....Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
 - C1063-08.....Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
- C. Federal Specifications (FS):
 - UU-B-790A.....Building Paper, Vegetable Fiber (Kraft, Waterproofed, Water Repellent and Fire Resistant)

PART 2 - PRODUCTS

2.1 METAL PLASTERING BASES

- A. Expanded Metal Lath:
 - 1. ASTM C847, zinc-coated hot dipped galvanized per ASTM A-653, except as modified by ASTM C841 and this specification.

2. Self furring diamond mesh complying with ASTM C1063, weighing not less than 3.4 pounds per square yard.
3. Recycled Content: Provide steel products with average recycled content such that post-consumer recycle content plus one-half of pre-consumer recycled content is not less than 25 percent.
4. Manufacturers: Subject to compliance with requirements, provide products from only one of the following:
 - a. Alabama Metal Industries Corporation.
 - b. CEMCO.
 - c. Clark Western Building Systems.
 - d. Dietrich Metal Framing.
 - e. Marino WARE.
- B. Paper Backing: FS UU-B-790, Type I, Grade D, Style 2 vapor-permeable paper with 60-minute water resistance.

2.2 ACCESSORIES FOR CEMENT PLASTER (STUCCO)

- A. ASTM C841 and C1063, except fabricate from zinc alloy.
- B. Control Joints: ASTM C841, zinc, one-piece type with perforated flanges and removable protective tape.
- C. Corner beads: 1/8-inch bead, wing type, 26 gage galvanized steel, with perforated flange not less than 2 inches wide.
- D. Casing beads: square style, 24 gage galvanized steel, with expanded flange, 7/8-inch ground for Portland cement plaster, as manufactured by United States Gypsum No. 66, or as approved.
- E. Cornerite and strip lath: expanded metal lath, galvanized or painted and weighing not less than 2.5 lbs. per square yard.
- F. Coordinate depth of trim and accessories with thickness of total plaster coats required.
- G. Vented Metal Reveal Trim
 1. Extruded aluminum ventilating screeds for 3/4-inch ground, with a prime painted finish as manufactured by Fry Reglet Corp. "FPM-75-V-75", or as approved.

2.3 FASTENERS

- A. Tie, wire, screws, clips, and other fasteners per ASTM C841 and C1063, except as otherwise specified.
- B. Fasteners for securing metal plastering bases shall have heads, or be through washers large enough to engage two strands of the metal plastering base.
- C. Screws: ASTM C1002.

2.4 CEMENT

- A. Portland: ASTM C150, Type I.

2.5 LIME

- A. ASTM C206, Type S.

2.6 AGGREGATES (SAND)

- A. ASTM C897, graded as required to suit texture of finish specified.

2.7 FACTORY PREPARED FINISH COAT FOR CEMENT PLASTER (STUCCO)

- A. Factory prepared dry blend of Portland cement, hydrated lime, sand aggregates and iron oxide pigment materials, integrally colored, designed for exterior finish coat application and mechanically blended on site.
- B. Pigments: ASTM C979, lime proof mineral oxide.
- C. Not more than 35 percent, by weight of all ingredients (cement, aggregate, hydrated lime, admixture and coloring pigment) shall pass a number 100 sieve.

2.8 ADMIXTURES

- A. Air Entrainment: ASTM C260.
- B. Water for Mixing: Potable and free of substances capable of affecting stucco set or of damaging plaster, lath or accessories including fasteners.

2.9 ACRYLIC-BASED FINISH COATINGS

- A. Factory-mixed acrylic-emulsion coating systems, formulated with colorfast mineral pigments and fine aggregates; for use over Portland cement plaster base coats. Include manufacturer's recommended primers and sealing topcoats for acrylic-based finishes.
 - 1. Manufacturer-Products: Subject to compliance with requirements, provide the following:
 - a. LaHabra, Inc. "Acrylic Finish" (**Basis of Design**).
 - 2. Color: Limestone.
 - 3. Texture:
 - a. Type ES-1: Fine sand float finish, non-directional.
 - b. Type ED-2: Heavy dash finish, non-directional.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates with Installer present, including framed openings, for compliance with requirements and other conditions affecting performance of the Work.

3.2 PREPARATION

- A. Protection
 - 1. Protect adjacent construction from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering by the

use of suitable covering or other method during progress of the Work until Substantial Completion.

- B. Prepare solid substrates that are smooth or that do not have the suction capability to bond with cement plaster according to ASTM C926.

3.3 METAL PLASTERING BASES (LATH) LOCATIONS

- A. Where metal plastering bases are used as a base for exterior cement plaster over gypsum board sheathing and fluid applied air-barrier, use self-furring wire lath free of rust, oil, or other foreign matter.

3.4 APPLYING METAL PLASTERING BASES

- A. In accordance with ASTM C841 and C1063, except as otherwise specified or shown.
- B. Form true surfaces, straight, without sags or buckles and with long dimension of lath at right angles to direction of supports.
- C. Lath for ceiling or soffit construction shall terminate at casing bead (floating angle construction) at perimeter angles between walls and ceilings or soffits.
- D. Self-furring lath with backing shall be applied to produce a paper to paper and metal to metal lap at ends and sides of adjacent sheets, whether full sheets or less than full sheets are used:
 - 1. Backing shall be lapped 2 inches for both horizontal and vertical laps.
 - 2. Horizontal laps shall be ship lap fashion to conduct water to the outside and over flashing.
 - 3. Provide a minimum of two layers of paper backing to ensure a drainage plane between the two if the cement plaster adheres to the first layer.
- E. Metal plastering bases shall not be continuous through expansion and control joints, but shall be stopped at each side.

3.5 INSTALLING PLASTERING ACCESSORIES

- A. Install accessories in accordance with ASTM C841, except as otherwise specified.
 - 1. Set plastering accessories plumb, level true to line, neatly mitered close and tight at corners and intersections, and securely attach to supporting surfaces as specified for metal lath.
 - 2. Install in one piece, within the limits of the longest commercially available lengths.
- B. Corner Beads: Install at all vertical and horizontal external plaster corners, as required to establish grounds, and where shown.
- C. Strip Lath:

1. Install metal lath strips centered over joints between dissimilar materials, such as joints with metal lath on framing or furring, where both such surfaces are required to be plastered and are in contact with each other in same plane, except where expansion joints and casing beads are required.
2. Wire tie or fasten strip lath to base along both edges at not over six inches on centers.

D. Casing Beads:

1. Install casing beads where shown and at following locations where plaster terminates to provide finish trim.
2. Where plaster terminates against non-plastered surfaces such as masonry.
3. Where plaster terminates against trim of steel frames and trim of other materials and equipment, except where trim overlaps plaster.
4. Around perimeter of openings except where edge is covered by flanges. Locate to conform to dimensions shown on shop drawings.
5. Where plaster for new walls or furring (vertical or horizontal) terminates against existing construction.
6. Both sides of expansion and control joints unless shown otherwise.
7. Install casing bead at perimeter angles between walls and ceilings so as to provide floating angle (unrestrained) construction in accordance with ASTM C841.

E. Cornerites:

1. Install at interior corners of walls, partitions, and other vertical surfaces to be plastered, except where metal lath is carried around angle.
2. Fasten only as necessary to retain position during plastering.
3. Omit cornerites at junction of new plastered walls with existing plastered walls at locations where casing beads are specified.

F. Control Joints:

1. Form control joints with control joint beads and with lath discontinuous, locate where indicated and as follows:
 - a. Metal lath and cement plaster: 10 feet on center, maximum, and as required to divide surface into areas of 144 square feet maximum on vertical wall surfaces and 100 square feet maximum on horizontal soffit surfaces, unless otherwise indicated.
 - b. Wherever a change in substrate material occurs.
 - c. Where plaster work areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

- d. Where control joints are placed parallel to framing members, install joints within four inches of the framing member.
 - e. Install control joints only to the edges of abutting sheets of lath so that the lath is not continuous or tied across the joint.
 - f. Joints shall extend the full width and height of the wall or length of soffit/ceiling plaster membrane.
2. Review location of all control joints and metal casing beads with the Resident Engineer and-or Architect before proceeding with the Work.
- G. Vented Metal Reveal Trim
- 1. Install vented metal reveal trim as indicated for exterior soffits. Provide concealed spline to maintain joints in alignment and to allow thermal movement. Provide mitered corners at changes in direction.

3.6 PORTLAND CEMENT BASED PLASTER

- A. Provide portland cement based plaster where cement plaster (stucco) is shown and specified, and as follows:
- 1. Three coat work shall be used over all metal plastering bases.
- B. Proportion, mix and apply plaster in accordance with ASTM C926, except as otherwise specified.
- 1. Except where hand mixing of small batches is approved by the Resident Engineer, use mechanical mixers of approved type for plaster mixing. Comply with plaster manufacturer's printed instructions for mixing.
 - 2. Use air entrained plaster for all exterior work.
 - 3. Use coloring pigments for finish coat when integral color other than white is specified.
 - 4. Factory prepared finish coat: Add water, mix, and apply as specified by manufacturer.
 - 5. Point up around trim and other set work.
 - 6. Plaster containing ridging, cracks, blisters, pits, checks and discoloration will not accepted. Remove such plaster, and replace with new plaster. Patch plaster to match and finish level with adjoining work.
 - 7. Patch cracks and other defects so that surfaces will be acceptable for application of other finishes.
- C. Surface Tolerance
- 1. In a section of any length, do not deviate from required line or plane more than the proportion of 1/8-inch in 12 feet.

3.7 PLASTER REPAIRS

- A. Repair or replace Work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.8 CLEANING

- A. Remove temporary protection of other work and promptly remove plaster spots from aluminum frames, glass and other surfaces which may be damaged by prolonged contact with plaster, at the end of each day's Work.
- B. Repair walls, windows, and other surfaces stained, marred, or otherwise damaged during plastering.
- C. At completion of the Work, remove plaster spots from floors, glass, and other surfaces. Leave finished areas clean and in acceptable condition.

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